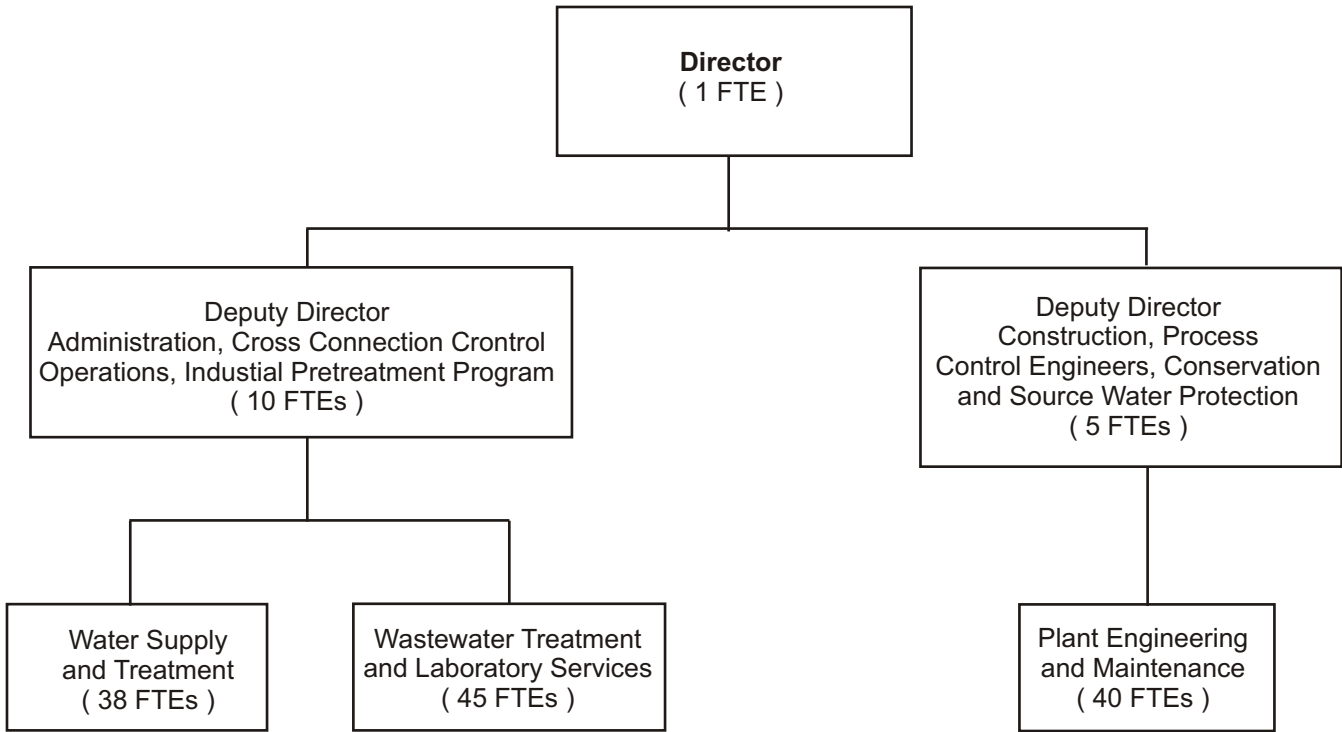




# Environmental Resources (139 FTEs)



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## ENVIRONMENTAL RESOURCES

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### Mission:

To provide safe and sufficient water for all citizens of Durham, to protect the environment through effective water conservation and reclamation and to provide efficient and cost-effective landfill post-closure monitoring.

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### PROGRAM DESCRIPTION

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#### Administration

**\$1,398,855**  
**16 FTE's**

The Environmental Resources Department provides for the reliable operation and maintenance of water and wastewater treatment facilities, with adequate capacities to meet essential needs to provide safe and sufficient drinking water as well as wastewater treatment to protect the public health and safety. The Department also provides critical, essential services necessary for the public health and safety of the City by providing safe drinking water and water for adequate fire protection. System security for both water and wastewater systems is important for reliable operation and the ability to meet system demands. Attention to security has become an integral part of operations. Efforts continue to provide and promote self-evaluation, benchmarking opportunities and other sound business practices in an effort to remain competitive with other cities and utilities, while promoting a positive image for the City and the services provided. Support for expanded automation of plant operations continues with the goal of gaining chemical and power efficiencies, improving reliability and minimizing staff requirements. Efforts also continue to develop new sources of revenue including initiatives such as Landfill Gas development and use as well as contract water and reclaimed water sale.

Administration is tasked with the oversight and planning processes necessary for providing adequate water resources and wastewater treatment facilities to meet the needs of our growing community. Personnel manage the on-going evaluation and improvement of departmental facilities and regulatory compliance issues, including administering the City's Industrial Waste Pretreatment Program that enforces the City's Sewer Use Ordinance and supervision of the Cross Connection Control unit, which insures the protection of the potable water system. Specialized departmental programs in water conservation, resource management and public education are also included in this core area.

In support of the goals of improving livability and promoting fiscal responsibility, the Environmental Resources Department administers a broad range of environmental programs. These efforts provide critical services to the citizens of Durham and are related to water quality, wastewater treatment and industrial activity. Support services include department administration, plant engineering and maintenance and laboratory services.

#### Laboratory Services

**\$654,348**  
**10 FTEs**

Laboratory Services provides lab analysis for water, wastewater and storm water programs.

#### Plant Engineering & Maintenance

**\$3,299,085**  
**40 FTEs**

Plant Engineering & Maintenance provides all major maintenance and minor construction support for water, and wastewater facilities. They also have responsibility for long-term maintenance of the closed landfill. Expenses for support services are apportioned to the appropriate core services of water and wastewater as they relate to performance indicators.

#### Water Supply & Treatment

**\$4,890,621**  
**38 FTEs**

This core service area is responsible for providing a safe, reliable, economical and sufficient supply of water to the citizens of Durham City and County. Through optimizing treatment processes, maximizing water transfer strategies and conducting monitoring activities, staff ensures that adequate supplies of consistently high quality drinking water are available to Durham's water customers. The Water Supply and Treatment Division (WS&T) operates and maintains two conventional water treatment facilities with a combined treatment capacity of 52 million gallons per day (MGD) and two surface water reservoirs. Service is provided by operating equipment and adjusting treatment technologies to optimize the physical and chemical processes important in effective water treatment and by selecting pumping scenarios that assure adequate supplies at minimum costs. This level of

service supports community goals by providing reliable, critical services for citizens and, thereby maintaining a safe and stable environment.

## Wastewater Treatment

**\$7,096,852**

**35 FTEs**

This core service area provides the citizens of Durham with cost-effective wastewater treatment and residuals management. This core service is accomplished by optimizing the treatment processes so that the North Durham and South Durham facilities discharge effluent of consistently high quality in compliance with State permit requirements. The North and South Durham work groups operate and maintain state-of-the-art tertiary treatment facilities, each with a permitted capacity of 20 million gallons per day (MGD). North Durham personnel assist the Department's Solid Waste Disposal Division with the Household Hazardous Waste (HHW) Program and by conducting monitoring activities related to landfill post closure monitoring and managing the landfill gas collection system. The Laboratory Services Section of the Department is located at the South Durham Facility. This level of service by this core area supports community goals by protecting the environment for the citizens of Durham, for downstream users of the water receiving Durham's discharges and others potentially affected by our residual management operations. This service also includes wastewater treatment costs for city wastewater flows to the County wastewater treatment plant.

## Post-Closure Monitoring

**\$204,980**

This service area provides for the monitoring and maintenance of the closed landfill and is supported by the Solid Waste Fund.

RESOURCE ALLOCATION					
	Actual FY 2001-02	Adopted FY2002-03	Estimated FY2002-03	Adopted FY2003-04	Change
Appropriations					
Personal Services	\$ 6,894,188	\$ 7,135,840	\$ 7,073,006	\$ 7,238,299	1.4%
Operating	14,738,678	15,818,808	15,126,779	9,981,942	(0)
Capital	379,997	182,850	235,700	324,500	1
Debt Service	-	-	-	-	-
Transfers to Other Funds	-	-	-	-	-
Total Appropriations	\$ 22,012,863	\$ 23,137,498	\$ 22,435,485	\$ 17,544,741	-24.2%
Full Time Equivalents	145	142	142	139	(3)
Revenues					
Water & Sewer Fund	\$ 15,441,230	\$ 17,131,902	\$ 16,624,996	\$ 17,339,761	1.2%
Solid Waste Fund	6,571,633	6,005,596	5,810,489	204,980	-96.6%
Total Revenues	\$ 22,012,863	\$ 23,137,498	\$ 22,435,485	\$ 17,544,741	-24.2%

## BUDGET ISSUES FOR FY2003-04

- No changes are made to levels of service for Water and Wastewater services. Delayed maintenance/replacement of non-funded and under funded items may lead to increased costs and expenses in the future.
- The Transfer Station and Solid Waste Disposal service component will be transferred to the Solid Waste Management Department. Maintenance of the Landfill and the Landfill Gas Collection System will remain in the Environmental Resources Department.

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**UNFUNDED ITEMS**

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• Water plant sludge disposal	\$10,000
• Williams Plant and Lake Michie MIMS	\$100,000
• Brown Plant #6 Filter rehabilitation	\$150,000
• Partnership for Safe Water Level III	\$50,000
• Painting of Gas Holder at SDWRF	\$100,000
• Reduction of Chemical budget	\$10,000
• Gas Compressors	\$100,000
• Ultraviolet Equipment	\$100,000
• Primary Sludge Piping	\$100,000
• Backhoe Replacement	\$74,000
• Reduction of Electricity budget	\$48,000
• Additional Lick Creek Pump Installation	\$200,000
• Portable Backup Generator	\$30,000
• Security Improvements for Water System recommend by VA	\$500,000
• Complete Environmental Assessment & Design for Teer Quarry project	\$500,000
• Sludge Pad Cover for the South Durham Water Reclamation Facility	\$500,000

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**COMPLETED INITIATIVES FOR FY2002-03**

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- Completed vulnerability assessment at City water treatment plants.
- Participated in update of water and sewer rate study model.
- Completed draft of long term water conservation plan.
- Completed construction of the first phase of the Brown Water Treatment Plant expansion.
- Completed construction of back-up generator system for the South Durham Water Reclamation Facility.
- Completed design of renovation to the Huckleberry Reservoir and began construction.
- Initiated a new chemical process at the water treatment plants for enhanced treatment.
- Completed and distributed utility's annual water quality and consumer confidence report.
- Completed and distributed utility's annual wastewater collection report.
- Met customer service standards for the year.
- Continued engineering studies for Teer Quarry water supply project.
- Successfully managed water supplies through worst drought on record.
- Obtained 10mgd allocation of water supply from Jordan Lake.

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**DEPARTMENT INITIATIVES FOR FY2003-04**

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- Continue renovations at North Durham Water Reclamation Facility.
- Complete Little River Dam repairs.
- Complete Lake Michie Dam repairs.
- Complete painting of Ellis Road Tank.
- Initiate an ongoing benchmarking program through the American Water Works Association program "Benchmarking Clearinghouse" to compare utility performance benchmarks against other competitive utilities.

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**GOALS, OBJECTIVES & STRATEGIES FOR FY2003-04**

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**GOAL:** *To provide a safe working environment for all department employees.*

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**OBJECTIVE:** To continue to reduce accidents and incidents which involve lost employee work time and/or property damage.

**STRATEGY:** To continue the efforts of the Department's safety committee, through safety training, and to reinforce the safety incentive program.

<b>MEASURE:</b>	<b>Actual FY2002</b>	<b>Adopted FY2003</b>	<b>Estimated FY2003</b>	<b>Adopted FY2004</b>
Lost time incident rate	6.4%	N/A	7.7%	7.0%

**GOAL:** *To provide sufficient quantities of high quality drinking water to all of Durham's customers at the lowest possible cost.*

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**OBJECTIVE:** Zero violations of water supply and treatment regulations or requirements during FY03-04

**STRATEGY:** Maintain facilities and equipment so that high quality treatment is provided 100% of the time. Continue studies for the investigation of process alternatives and improvements for capacity expansion.

<b>MEASURE:</b>	<b>Actual FY 2002</b>	<b>Adopted FY 2003</b>	<b>Estimated FY 2003</b>	<b>Adopted FY 2004</b>
# of violations of regulations/requirements	0	0	0	0

**OBJECTIVE:** To plan for system growth and system improvements.

**STRATEGY:** To Continue to track and analyze water demand.

<b>MEASURE:</b>	<b>Actual FY 2002</b>	<b>Adopted FY 2003</b>	<b>Estimated FY 2003</b>	<b>Adopted FY 2004</b>
Annual average demand (MG)	12,971	11,300	10,000	11,500

**OBJECTIVE:** To operate the water supply and treatment facilities to minimize increases in unit cost (\$/MG) as the system demand increases and the need for infrastructure improvements increase.

**STRATEGY:** To optimize the water treatment process with careful monitoring and control of chemical feed equipment. Continue to minimize costs for pumping while maintaining adequate supply by using "Time-of-Day" electric rates and water transfer by hydropower.

<b>MEASURE:</b>	<b>Actual FY 2002</b>	<b>Adopted FY 2003</b>	<b>Estimated FY 2003</b>	<b>Adopted FY 2004</b>
\$\$ Per MG treated	\$431	\$543	\$586	\$546

**GOAL:** To provide effective wastewater treatment services so that the needs of Durham's customers can be met in a cost-effective manner

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**OBJECTIVE:** No violations of wastewater treatment rules and regulations at the water reclamation facilities during FY04.

**STRATEGY:** Operate and maintain facilities and equipment so that adequate treatment is provided 100% of the time. Increase back-up power at SDWRF.

<b>MEASURE:</b>	<b>Actual FY 2002</b>	<b>Adopted FY 2003</b>	<b>Estimated FY 2003</b>	<b>Adopted FY 2004</b>
# of violations of regulations/requirements	0	0	3*	0

\* One of the three violations for FY03 was related to the December 2002 ice storm and lack of back-up power.

**OBJECTIVE:** Monitor annual average flows for assessment of remaining capacity.

**STRATEGY:** Continue to track and analyze flows relative to system capacity. Continue efficiency improvements at both wastewater plants.

<b>MEASURE:</b>	<b>Actual FY 2002</b>	<b>Adopted FY 2003</b>	<b>Estimated FY 2003</b>	<b>Adopted FY 2004</b>
Annual avg. flow demand (MG)	6,445	6,800	7,200	7,200

**OBJECTIVE:** Operate the water reclamation facilities to minimize increases in unit cost (\$/MG) as the system demand increases and the need for infrastructure improvements increase.

**STRATEGY:** Optimize the water reclamation process improvements. Continue to minimize costs by efficient energy usage strategies and effective staff deployment.

<b>MEASURE:</b>	<b>Actual FY 2002</b>	<b>Adopted FY 2003</b>	<b>Estimated FY 2003</b>	<b>Adopted FY 2004</b>
\$ Per MG Treated	\$932	\$1,065	\$850	\$991